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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,872	11/26/2003	Jianfeng Lou	IR 3707 NP	1718

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ARKEMA INC.  
PATENT DEPARTMENT - 26TH FLOOR  
2000 MARKET STREET  
PHILADELPHIA, PA 19103-3222

EXAMINER

POULOS, SANDRA K

ART UNIT PAPER NUMBER

1714

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/722,872	LOU ET AL.	
	Examiner	Art Unit	
	Sandra K. Poulos	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/26/03; 4/23/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 7, 8, and 12 are objected to because of the following informalities:

Claim 1: There should be a comma after "polyester".

Claim 7: It appears that "diethyl alkylhydroxylamine" should be "diethyl hydroxylamine" and a comma should be placed between (DEHA) and dibutylhydroxylamine. Also, there should be a space between "(DBHA)" and "or", i.e. "(DBHA) or" rather than "(DBHA)or".

Claim 8: The article "the" is missing from between "wherein" and "aromatic".

Claims 12: For clarity there should probably be the word "further" inserted between "that" and "contains" to indicate that the peroxide catalyst is added in addition to the components already listed in claim 1.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsukawa et al (US 5,770,653) in view of NL 7401405 wherein the abstract is referred to hereafter (a full translation of NL 7401405 is pending).

Matsukawa discloses a resin composition with improved storage stability that contains unsaturated polyester resin (col 3, line 42 to col 4, line 43; col 5, lines 46-61), a monomer (col 9, lines 16-35), phenothiazine (col 9, line 65 to col 10, line 12), and an ionic inorganic metallic compound (col 10, line 13 to col 11, line 6). Compounds with dicyclopentenyl groups are present (col 7, line 39 to col 8, line 44). Among metallic salts, metallic halides are especially appropriate for use, among which is cobalt chloride (col 10, lines 54-59). Quinone-type inhibitors can be further added (col 11, lines 46-59). Organic peroxide catalysts which are normally used in the unsaturated polyester resin

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industry may be used as a curing agent (col 12, lines 16-28). Cure accelerators including cobalt naphthenates maybe be used and additionally dimethylaniline (col 12, lines 16-60). In the examples, cobalt octoate is used with dimethylaniline and a mixture of a quinone and phenothiazine. The composition is used as a cured coating (col 17, lines 15-18).

Matsukawa does not disclose a composite stabilizer comprised of a hydroxylamine oxide.

NL 7401405 discloses a stabilized composition comprising unsaturated polyester resins. Peroxide solutions are useful for curing agents for unsaturated polyester resins and are typically methyl ethyl ketone peroxide. To the extent that NL 7401405 discloses stabilized unsaturated polyester resin and peroxide agents, it overlaps the content in Matsukawa. The composition is stabilized by adding at least 0.1% preferably 0.2-0.5% of an amine oxide such as tributylamine oxide. Recognizing that tributylamine oxide is a species of hydroxylamine oxide, it would have been obvious to one of ordinary skill in the art to use hydroxylamine oxide as a stabilizer in the composition disclosed by Matsukawa. The Matsukawa reference discloses an unsaturated polyester composition with components that contribute to the improved storage stability of the composition. NL 7401405 discloses that tributylamine oxide likewise stabilizes unsaturated polyester compositions. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506, 509, 173 USPQ 356, 359 (CCPA 1972). Therefore, it would have

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been obvious to combine the amine oxide with the composition disclosed by Matsukawa.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsukawa et al (US 5,770,653) in view of NL 7401405 as applied to claims 1-12 and 14 above, and further in view of Kramer et al (US 3,326,860) or Kessin et al (US 3,349,040).

The discussion with respect to Matsukawa and NL 7401405 in paragraph 3 above is incorporated herein by reference.

Matsukawa and NL 7401405 are silent with respect to the oxygen content of the peroxide.

Kramer discloses a polyester resin composition (col 1, lines 10-33) that includes other monomers (col 19, lines 59-75), peroxides (col 20, line 22 to col 21, line 15), and promoters such as dimethyl aniline and cobalt naphthenate (col 21, lines 1-62). Kramer discloses peroxides with active oxygen contents of 1% and 10.8% (col 20, lines 50-69).

Kessin discloses the peroxide curing of unsaturated polyester resins (col 1, lines 28-30). For room-temperature cures they can be used in combination with a cobalt-amine activator system (col 1, lines 30-37). The peroxides have an active oxygen content of about 1 to 6% (col 2, lines 28-38; col 3, lines 10-23).

The currently claimed peroxide with an oxygen content of 0.05 to 50% for use in polyester composition is known in the prior art in view of the disclosures of either Kramer or Kessin above. It would have been obvious to employ the oxygen contents

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above because peroxides used in polyester resin composition are typically used in this range and have been shown to be effective.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jefferson et al (US 4,309,511) discloses a process for promoting the low temperature cure of polyester resins (abstract). The promoter system comprises a cobalt salt, a copper salt, and an aromatic amine (col 1, line 50 to col 2, line 19; col 2, line 67 to col 3, line 61). Dimethyl aniline and cobalt salts are used together in Tables 1 and 4 in the Examples. Vinyl monomers are added to the unsaturated polyester resin to effect cross-linking of the acid to form thermoset materials (col 2, lines 50-63). For low temperature cure, various heat sensitive preresters, peroxides, or hydroperoxides are conventionally used, with methyl ethyl ketone preferred (col 4, lines 38-47).

Claver (US 2,628,951) and (US 6,87,442) discloses polymers stabilized with trialkyl amine oxides.

Mahan (US 2,893,995) discloses a method of reducing popcorn polymer by addition of oxides of trialkylamines.

Albert (US 3,148,225) discloses a method of inhibiting popcorn polymer production by the use of N,N-dialkylhydroxylamines.

Lundberg et al (US 3,091,936) discloses an unsaturated polyester composition with cobalt salt/aniline as a promoter.

Lou (US 2003/0171530) discloses a promoter system with cobalt salt and amine for unsaturated polyesters.

Lou et al (US 6,761,833) discloses a polymer composition stabilized by alkyl hydroxyl amine.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

*Vasu Jagannathan*  
VASU JAGANNATHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700